

Translation

PATENT COOPERATION TREATY

PCT/FR2003/050187



# PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference B14168/69 GB	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/050187	International filing date (day/month/year) 17 décembre 2003 (17.12.2003)	Priority date (day/month/year) 19 décembre 2002 (19.12.2002)
International Patent Classification (IPC) or national classification and IPC G09B 21/00		
Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of <u>1</u> sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the report</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 24 juin 2004 (24.06.2004)	Date of completion of this report 30 March 2005 (30.03.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/050187

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☒ the description:  
pages \_\_\_\_\_ 1-24 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages \_\_\_\_\_ 2-16 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_ 1 \_\_\_\_\_, filed with the letter of \_\_\_\_\_ 30 September 2004 (30.09.2004)
- ☒ the drawings:  
pages \_\_\_\_\_ 1/6-6/6 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/FR 03/50187

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-16	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-16	NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

### 2. Citations and explanations

#### 1. Reference is made to the following documents:

- D1: US-A-5 574 576 (MARTIN DANNY W) 12 November 1996 (1996-11-12)
- D2: US 2002/106614 A1 (PRINCE TROY S ET AL) 8 August 2002 (2002-08-08)
- D3: DE 32 02 218 A (HORIBA LTD) 5 August 1982 (1982-08-05)
- D4: PATENT ABSTRACTS OF JAPAN vol. 0154, no. 62 (P-1279), 22 November 1991 (1991-11-22) & JP 3 197993 A (CANON INC), 29 August 1991 (1991-08-29)

#### 2. Independent claim 1:

Document D1 describes (the reference signs between parentheses apply to this document) a device comprising a touch-sensitive interface consisting of a plate 70 with a controllably modifiable surface, wherein the plate comprises a set of modifying elements 71 for modifying the surface 70 (column 7, lines 9-11 and figure 5), and the device also comprises control means for controlling the surface-modifying elements 71 (laser diodes 49). According to D1, the set of surface-modifying

elements 71 of the plate 70 consists of a set of a plurality of blades 73, 75 (see figures 5 and 6) integrally secured to the plate via an arm integrally secured to the plate (column 7, lines 11-13 and figures 5 and 6). Blade release recesses are provided in one edge portion of the blade 75 (column 7, lines 11-13) and the blade has a first position at a first temperature and a second position at a second temperature (column 7, lines 23-28).

It follows that the subject matter of claim 1 differs from the device described in D1 by virtue of the feature whereby

- the plate is made of a shape-memory material or comprises at least one sub-plate made of a shape-memory material.

It is clear from D1 that the surface-modifying elements 71 are made of (or include) a material which changes shape when the temperature thereof is modified (see column 7, lines 10-14 and lines 22-27). D1 describes the use of a bimetallic material is being merely one option or one example of a material having this property ("such as a bimetallic membrane").

The objective technical problem to be solved by a person skilled in the art starting with D1 can thus be considered that of finding a material with a temperature-sensitive shape other than the one mentioned as an example in said document, i.e. a material having said property other than a bimetallic material.

However, a person skilled in the art would be well aware that shape-memory materials have the feature

set forth in document D1.

Therefore, the use of a shape-memory material instead of a bimetallic material in the touch-sensitive interface as per D1 is merely one of a plurality of alternatives that a person skilled in the art might select, depending on each particular case, and without an inventive step being involved.

The use of shape-memory materials to actuate surface-modifying elements is also known in the field of touch-sensitive interfaces. See, for example, document D2 (figures 10A and 10B). Furthermore, D2 explicitly mentions the general advantages resulting from the use of thin films made of shape-memory material to actuate surface-modifying elements (paragraph 51, "A thin film SMA... portable electronic devices").

For these reasons, the solution proposed in claim 1 of the present application is not considered to be inventive (PCT Article 33(3)).

3. Dependent claims

The additional features in claims 2 and 3 are also disclosed in D1 (see the passages cited above; it should be noted that every bimetallic or shape-memory material is a two-way material). For these reasons, the subject matter of claims 2 and 3 of the present application is not considered to be inventive (PCT Article 33(3)).

A bimetallic material necessarily consists of two sub-plates joined together. Therefore, the additional feature in claim 4 is also known from D1.

Moreover, D2 describes surface-modifying elements consisting of two sub-plates joined together via a common main surface (see figures 10A and 10B). For each of these two reasons, the subject matter of claim 4 of the present application is not considered to be inventive (PCT Article 33(3)).

The additional feature in claim 5 is used with the same effect in D2 (see figures 10A and 10B, paragraph 53). For this reason, the subject matter of claim 5 of the present application is not considered to be inventive (PCT Article 33(3)).

D2 describes the use of a second thin film of shape-memory material (paragraph 52, page 7, penultimate sentence) to exert a return force. For this reason, the subject matter of claim 6 of the present application is not considered to be inventive (PCT Article 33(3)).

The additional feature in claim 7 merely appears to be one of a plurality of obvious alternatives that a person skilled in the art might select, depending on each particular case, when seeking to solve the problem of generating a lever effect for a surface-modifying element, without an inventive step being involved.

The additional feature in claim 8 is required if the use of two plates made of shape-memory material and independently joined together via a common main surface is desired. For this reason, the subject matter of claim 8 of the present application is not considered to be inventive (PCT Article 33(3)).

The features in claims 9, 10 and 12 are also known from D1 (see the passages cited above). For these reasons, the subject matter of these claims is not considered to be inventive (PCT Article 33(3)).

The additional features in claims 11 and 13 to 16 are either disclosed in the documents cited in the search report (D3: figure 1, page 5, lines 14-24 and page 7, line 27; D4: abstract and figure 3) and used for the same purpose as in the present application, or generally known to persons skilled in the art (the use of optical fibres for guiding a laser beam), meaning that they do not involve an inventive step.

**Additional observations**

Contrary to the requirement of PCT Rule 5.1(a)(ii), the relevant prior art disclosed in documents D1, D2, D3 and D4 has not been indicated in the description, nor have these documents been cited.

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CLAIMS

1. A device comprising a tactile interface formed  
by a plate (10) having a surface (10a) capable of being  
modified in a controlled manner, the plate comprising  
an array of elements (25) for modification of the  
5 surface (10a), each made up by an array of one or more  
blade(s) (23) solid monolithically with the plate (10)  
by one or more arms (13) solid monolithically with the  
plate (10), one or more recesses (14) of release of  
blades being present on a part of a perimeter of the  
10 blade (23), the blade (23) having a first position at a  
first temperature and a second position at a second  
temperature, the device also comprising control means  
of the modification elements of the surface (10a),  
characterised in that the plate (10) is made of a shape  
15 memory material A or comprises at least one sub-plate  
made of shape memory material.

2. The device comprising a tactile interface  
formed by a plate (10) made of a shape memory material  
20 as claimed in Claim 1, characterised in that the shape  
memory material making up the plate (10) is a two-way  
material having a first hot form and a second cold  
form.

25 3. A device comprising a tactile interface formed  
by a plate (10) made of a shape memory material a